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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,504	03/01/2004	Dar-Ming Chiang	250913-1140	2741
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THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 100 GALLERIA PARKWAY, NW STE 1750 ATLANTA, GA 30339-5948				
			EXAMINER DESAI, ANISH P	
			ART UNIT 1771	PAPER NUMBER

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/791,504

Applicant(s)

CHIANG ET AL.

Examiner

Anish Desai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 18-52 is/are pending in the application.
- 4a) Of the above claim(s) 18-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 39-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of Group II claims 18-52, specifically election of species II Claims 39-52 in the reply filed on 02/21/06 is acknowledged.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 39-52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 39 recites acronyms for species VdF, HFP, CTFE, and TFE without defining the full names of these species. For the purpose of the examination the examiner is interpreting VdF as polyvinylidene chloride, HFP as hexafluoropropylene, CTFE as chlorotrifluoro ethylene, and TFE as tetrafluoro ethylene. Claims 38-52 are rejected because these claims depend from the rejected claim 39.
3. Claim 49 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 49 recites the limitation "second polymer", there is insufficient antecedent bases for this limitation in the claim. For the purpose of the examination, the examiner is interpreting claim 49 is dependent from claim 48.

***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 39 recites "VdF as first monomer, and HFP, CTFE, TFE, or combinations thereof as a second monomer." Thus, it is the examiner's position that any reference teaching a polymer obtained by copolymerizing VdF monomer and **either one** of the HFP, CTFE, TFE, or any combinations of HFP, CTFE, and TFE monomer will read on claim 39. Further claims 42-44, 46, and 49 recite "or less", thus it is the examiner's position that said recitation also includes zero as the lower limit, therefore any reference that does not disclose the amount of HFP (claim 42), CTFE (claim 43), TFE (claim 44), third monomer (claim 46), and second polymer (claim 49) will also read on the said claims.

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4. Claim 39 is rejected under 35 U.S.C. 102(b) as anticipated by Yamasaki et al. (US 4,513,049).

Yamasaki teaches an electret article comprising an even number of electret plastic films laminated together that find use in applications such as acoustic materials, filters, and medical supplies (abstract). Further the plastic film of Yamasaki is formed of a copolymer of fluorocarbon such as tetrafluoroethylene (TFE), hexafluoropropylene (HFP), and vinylidene fluoride (VdF) (Column 3, lines 1-4), which reads on the electret having a first polymer copolymerizing from monomers having VdF as a first monomer and HFP, CTFE, TFE, or combinations thereof as a second monomer as claimed in claim 39. Further Yamasaki teaches even number of electret films are brought into intimate contact with each other, with a spacer interposed between them (Column 4, lines 20-23) wherein the spacer can be formed of cloth and non-woven fabric (Column 4, lines 28-29). Note that the cloth can be porous. Thus, the spacer formed of cloth reads on the claimed porous substrate. Accordingly Yamasaki anticipates the claimed subject matter.

5. Claims 39-44, 47, 51, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (US 4,560,737) in view of Chou et al. (US 2003/0054716A1).

Yamamoto teaches a piezoelectric polymeric material in the form of a sheet or film, which comprises polymers of vinylidene fluoride (VDF) as a principle component. The piezoelectric sheet or film of Yamamoto is formed into an electret (abstract).

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Further, the piezoelectric polymeric sheet or film of Yamamoto comprises copolymers of VDF and chlorotrifluoroethylene (CTFE) (Column 2, lines 20-21), which reads on an electret having a first polymer copolymerizing from monomers having VdF as a first monomer and HFP, CTFE, TFE, or combinations thereof as a second monomer as claimed in claim 39. Further Yamamoto teaches a substrate at Column 4, lines 21-22.

Yamamoto is silent as to teaching of a porous substrate. However, Chou teaches a method of making an electret that includes coating a porous substrate (abstract). Further Chou discloses a substrate formed of nonwoven fibrous web, which includes fibers selected from polyolefin, polystyrene etc. (0021). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the nonwoven porous substrate of Chou in the invention of Yamamoto as a porous substrate because Chou provides necessary details to practice the invention of Yamamoto.

With respect to claims 41 and 43, the Example 1 of Yamamoto discloses 250 g of VDF monomer and 151 g of CTFE monomer that is subjected to polymerization. The chemical formulas of VDF and CTFE are  $C_2H_2F_2$  and  $CF_2=CFCl$  respectively. The molecular weight of VDF and CTFE are 64 g/mol and 116.47 g/mol respectively. Thus, the mole% of VDF in the mixture of VDF and CTFE is about 75 mole% and the mole% of CTFE in the mixture is about 25 mole%, which meets the claim limitations of claims 41 and 43 respectively. Regarding claims 42 and 44, Yamamoto is silent as to teaching of the content of HFP and TFE, which meets the claim limitation of claims 42 and 44. Regarding claim 47, although Yamamoto does not explicitly teach the content of fluorine

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element in the first polymer is between 60 and 78 wt%, it is examiner's position that as applied to claim 39, the teachings of Yamamoto either explicitly or implicitly teaches the content of the fluorine element in the first polymer to be between 60 and 76 wt%.

Because, Yamamoto teaches the same composition (an electret having a first polymer copolymerized from VDF as a first monomer and CTFE as a second monomer) as claimed by the applicant. Thus, it is not seen that the copolymer of VDF and CTFE as taught by Yamamoto would not have the content of the fluorine element from 60 and 76 wt% as claimed.

Regarding claims 51 and 52, Yamamoto as modified by Chou teaches claimed invention except the initial surface potential of the electret as claimed in claim 51 and a surface potential of electret as claimed in claim 52. However, it is reasonable to presume that the piezoelectric sheet or film of Yamamoto as modified by Chou necessarily has the claimed initial surface potential as claimed in claim 51 and a surface potential as claimed in claim 52 because like material has like property. The electret composite of applicant comprises a porous substrate and an electret coated on the porous substrate wherein the electret has a first polymer copolymerized from VdF as a first monomer and HFP, CTFE, TFE, or combinations thereof as a second monomer. Further, the electret of the applicant is polarized by corona discharge. The piezoelectric sheet or film of Yamamoto as modified by Chou as applied to claim 39 also comprises a porous substrate with a piezoelectric sheet wherein the piezoelectric sheet comprises a copolymer of VDF and CTFE. Thus, the initial surface potential as claimed in claim 51 and a surface potential as claimed in claim 52 would have been present. Note that

reliance upon inherency is not improper even though rejection is based on Section 103 instead of Section 102. *In re Skoner*, et al. (CCPA) 186 USPQ 80.

6. Claims 39,45, and 46 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Miyazaki et al. (US 4,931,505).

Miyazaki teaches a coating composition comprising a fluorine containing copolymer A wherein fluorine containing copolymer A comprises a copolymer of fluoroolefin having 2 or 3 carbons atoms such as tetrafluoroethylene (TFE), chlorotrifluoroethylene (CTFE), hexafluoropropylene (HFP), and vinylidene fluoride (VDF) (Column 1, lines 46-57) with at least one monomer selected from group consisting of vinyl ethers (Column 1, lines 57-58) such as alkyl vinyl ethers wherein alkyl groups having from 1 to 10 carbon atoms (Column 2, lines 11-14). Thus alkyl vinyl ether with alkyl group having 2 carbons reads on the claim limitation of ethyl vinyl ether as claimed in claim 45. Additionally, Miyazaki teaches substrates such as concrete and cement (Column 6, lines 35-36), which are inherently porous. Miyazaki does not explicitly teach "an electret" as recited in the body of the claim 39. However, it is the examiner's position that since Miyazaki teaches the same polymers namely a first polymer copolymerized from VdF as a first monomer and HFP, CTFE, TFE or combinations thereof as a second monomer as the applicant, in absence of unexpected results the coating composition of Miyazaki is capable of functioning as an electret. Regarding claim 46, Miyazaki is silent as to teaching of content of the third monomer in



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the first polymer. Thus, Miyazaki meets the claim limitation of "or less" as claimed in claim 46.

7. Claims 39, 48, and 49 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wensley (US 2002/0168564A1).

Wensley teaches a separator for a lithium polymer battery wherein the separator comprises a microporous membrane and a coating (abstract). Further the coating of Wensley comprises polyvinylidene fluoride (PVDF), polymethylacrylate, polyvinylacetate and copolymers of any of the foregoing and combinations thereof (0020). Moreover, the polyvinylidene fluoride copolymer is a copolymer of polyvinylidene fluoride and hexafluoropropylene (HFP) (0020), which reads on a first polymer copolymerizing from monomers having VdF as a first monomer and HFP, CTFE, TFE, or combination thereof as a second monomer as claimed in claim 39 (0020). Thus, the coating of Wensley can comprise a copolymer of PVDF and polyvinylacetate. The polyvinylacetate of Wensley reads on the claimed second polymer comprising polyvinyl acetate as claimed in claim 48. Regarding claim 49, Wensley is silent as to teaching of content of the second polymer. Thus, Wensley meets the claim limitation of "or less" as claimed in claim 49. Wensley does not explicitly teach "an electret" as recited in the body of the claim 39. However, it is the examiner's position that since Wensley teaches the same polymers namely a first polymer copolymerized from VdF as a first monomer and HFP, CTFE, TFE or combinations thereof as a second monomer as the applicant, in absence of

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unexpected results, the coating composition of Wensley is capable of functioning as an electret.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anish Desai whose telephone number is 571-272-6467. The examiner can normally be reached on Monday-Friday, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

APD

*Hai Vo*

**HAI VO  
PRIMARY EXAMINER**